Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at http://about.jstor.org/participate-jstor/individuals/early-journal-content.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

May 21, 1863.

Major-General SABINE, President, in the Chair.

The following communications were read:—

I. "On the Nature of the Sun's Magnetic Action upon the Earth." By CHARLES CHAMBERS, Esq. Communicated by the President. Received April 30, 1863.

(Abstract.)

If the sun were a magnet of sufficient power to exert a sensible attraction upon a small magnet at the distance of the earth, it would have a real influence on the earth by inducing magnetism in its soft iron, and an apparent one due to the direct action of the sun upon the magnets used for measuring the earth's variations of force. As the earth rotates upon its axis, producing a varying relation, as to position, of the place of observation with respect to the sun, a diurnal variation will thus be produced in the forces which act upon the magnetometers, which variation is shown to follow the simple law $x = A \sin(h + \alpha)$, x being the deviation of the magnet from its normal position, h the hour-angle of the sun (and for a single day), A a constant coefficient, and α a constant angle. A comparison of this result with the laws of the observed diurnal variations shows that direct and inducing action of the sun is not the sole cause of the variations.

An endeavour is then made to prove that if any part of the observed diurnal variations is due to this cause, it is small in comparison with that produced by other forces in operation. This is done by separating from the observed variations the part of them which obeys the law $x' = B \sin(h + \beta)$, and comparing the variations in the values of B and β from month to month with those of A and α, when it is seen that the former obey a law which has but little similarity to the law of variation of the latter.

II. "Numerical Elements of Indian Meteorology."—Series I. By Dr. HERMANN DE SCHLAGINTWEIT, Corr. Memb. of the Academies of Sciences of Munich, Madrid, Lisbon, &c. Communicated by the President. Received May 4, 1863.

(Abstract.)

In this paper the author communicates Plates in which the iso-